The Effects of Using L1 Translation on Young Learners' L2 Vocabulary Learning

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ABSTRACT

In the field of foreign language (FL) vocabulary acquisition, there seems to be a growing awareness of the fact that the L1 might have a facilitating role for language learners. Research has found evidence to support the positive effects of using the L1 as an instructional tool, particularly at the initial stages of FL learning. The present study explores the role that the L1 plays in young learners' retention of and access to English vocabulary. An experimental group and the corresponding control group of 10-11 year-old children in an EFL school context were recruited for the study. Exposing one group to the L1 translation of the target items and giving just the English input to the other group was the practice used to analyse exposure to translation in terms of lexical retention and lexical access. Results of the present study show that providing students with the L1 equivalents of the lexical items results in learners retaining more lexical items, accessing them with greater ease and recalling them for longer periods of time.

1. INTRODUCTION

Vocabulary is considered to be a key component of foreign language (FL) learning since commanding an extensive range of words is a central requirement to communicate effectively in any language (Nation, 1990; Lewis, 1993; Zimmermann, 1997; Hulstjin, 2001; Kit, 2003; Ahmadi, Ismail and Abdullah, 2012). A wide and growing range of techniques have been proposed to promote foreign language vocabulary development. Instances of different approaches include the use of mnemonic devices, which involve enhancing storage by encouraging students to use memory techniques, the practice of guessing vocabulary from context, the employment of visual aids, the application of paired associates and the use of dictionaries, among many others. These various approaches are very often linked and embedded into different broad teaching methods as, for instance, the naturalistic approach, which favours more implicit techniques for vocabulary development (Oxford, 1990; Nation, 1990; Read, 2004; Folse, 2004; Laufer, 2005).

Providing the mother tongue (L1) translation to the items being taught is very often regarded as a controversial practice when used to deal with vocabulary in foreign language contexts. Resourcing to the L1 in L2 vocabulary teaching might be seen as a negative and unfashionable exercise. Nevertheless, research has found clear advantages in linking L2 words to their L1 equivalents, more significantly at the initial stages of the learning process when the initial form-meaning connection has to be established (Jiang, 2002; Cook, 2003; Schmitt, 2008; Liu, 2009).

The present study seeks to explore the role the mother tongue (L1) plays in young learners' retention of and access to English vocabulary. Two groups of Catalan students aged between 10 and 11 participated in this study. One group was exposed to both the L2 forms of a set of lexical items and their L1 equivalents whereas the other

group was only provided with the English input. This contrastive instructional practice is analysed in relation to lexical retention, memory effects and lexical access. More specifically, the main research questions addressed in the present study are the following (1) Does the use of L1 translation promote short and long-term vocabulary retention? and (2) Does the L1 act as a facilitator in terms of lexical access?.

In line with other studies carried out exploring the effects of using L1 translation in foreign or second language vocabulary learning (Prince, 1996; Hulstijn, Hollander and Greidanus, 1996; Laufer and Shmueli, 1997; Van Hell and Candia Mahn, 1997; Grace, 1998; Lotto and de Groot, 1998; Sieh, 2008; Liu, 2009; Macaro and Lee, 2013), our hypothesis is that using the L1 when teaching vocabulary will be beneficial for young learners' vocabulary learning. Participants provided with the L1 equivalent translations are predicted to retain more words and access them with greater ease.

The present paper is divided in 6 sections and it is organized as follows: section 2 presents a theoretical framework to the study, which includes 3 different subsections: the first subsection highlights the main differences between learning and acquiring vocabulary, the second one explores strategies used in vocabulary learning and finally, the third subsection reviews the role of L1 in foreign language vocabulary teaching. The methodology of the study is presented in section 3. Sections 4 and 5 introduce, analyse and discuss the results obtained from the study and finally some conclusions are drawn.

2. LITERATURE REVIEW

2.1 L1 Vocabulary Acquisition vs. L2 Vocabulary Learning

Lexical acquisition is a crucial stage in the development of children's language since words are the basic building blocks for utterances. Hence, lexical acquisition is considered a critical initial step towards the development of language competence (Kit, 2003). In order for a lexical item to be acquired it first needs to be recognised as a word and then it has to enter into the mental lexicon, which has been commonly considered to be the most important element of language processing (Ellis, 1995; Aitchison and Lewis, 2003; Bonin, 2004). The concept of lexicon was first proposed and developed by Oldfield (1966). Since then, a number of different definitions have been given regarding this complex notion. By and large, the term *mental lexicon* has been referred to as the arrangement of words in one's mind, namely the human word store that every speaker carries inside their head (Hulstijn, 1997; Singleton, 2000; Aitchison and Lewis, 2003).

Children learning their L1 receive a considerable stream of utterances and are capable of inducing, with little supervision, the words from this stream (Kit, 2003). Such process is used by children to acquire a large number of words and they do so at an extraordinary pace. From the age of 18 months on, children go through a period of rapid vocabulary growth which has been referred to as the 'vocabulary spurt' or 'naming explosion' by developmental psycholinguists. Such a phenomenon accounts for children experimenting an initial slow pace of learning -before 18 months- followed by a period of truly rapid word production (Ganger and Brent, 2004; Li, Zhao and MacWhinney, 2007).

In contrast, learning L2 vocabulary presents a very different scenario. The fact that L2 learners are already equipped with an L1 and, hence, have developed conceptual and semantic systems linked to the L1, implies that L2 vocabulary learning will involve,

at least in its initial stages, a mapping of the new lexical forms onto already existing conceptual meanings or translational equivalents in the L1 (Takač, 2008). In other words, when being exposed to a second language, children have already learned how to categorise the world from their L1 experience and such categorisation is not likely to be retraced. Instead, the L2 lexical items are prone to be associated to L1 representations.

Models of bilingual lexical processing like the Revised Hierarchical Model (Kroll and Stewart, 1994) suggest that "L1 word forms are directly linked to meaning at the conceptual level, but that L2 meaning is accessed via L1 word forms" (Kroll and Sunderman, 2003: 401). Resourcing to a range of evidence from cross-language priming, Kroll (1993) also argues for a model of lexical and conceptual links between L1 and L2 in which the strength of such connections differs depending on factors like proficiency and age of acquisition. Regarding these mentioned factors, it follows that during the early learning process the L2 mental lexicon seems to be most likely organised in subordination to the L1 than in more advanced stages. As the learner becomes more proficient in the L2, the conceptual links between the L2 and its linked concepts are strengthened, which leads to less reliance to the L1 equivalents (Kersten, 2010; Macaro and Lee, 2013).

Foreign language vocabulary learning diverges from L1 acquisition not only on account of the different mental organization but also with respect to exposure to the target language. Learning words both in the L1 and in the L2 is a cyclical process which involves meeting these new words repeatedly (Cameron, 2001). As suggested by Laufer (2005), in order for lexical items to enter into the long-term memory system, the learner needs to have repetitive encounters with them. Such a cyclical process is more likely to occur in immersion contexts in which language tends to be learned without paying special attention to vocabulary since massive exposure to language guarantees

incidental vocabulary acquisition (Kersten, 2010). Conversely, the type of input exposure students learning a foreign language receive is often limited to the classroom environment. This condition does not favour children learning a large amount of vocabulary neither simply from exposure nor in a short period of time. In FL learning contexts, a remarkable amount of explicit vocabulary instruction is needed in order for students to learn vocabulary in a relatively short period of time (Campbell, Campbell and Dickinson, 2004).

2.2 Strategies for Foreign Language Vocabulary Teaching

As different teaching methods understand language learning in distinct ways, a wide variety of approaches have been proposed to deal with vocabulary in second or FL learning. The natural approach[1] to language teaching and, subsequently, most forms of Communicative Language Teaching favour implicit incidental vocabulary learning. In such methods, the aim is to imitate the way in which L1 words are acquired and hence, vocabulary is not explicitly or systematically taught since it is assumed that students can automatically acquire whatever material made available by comprehensible input (Folse, 2004). Guessing the meaning of words from context and using monolingual dictionaries are seen as suitable and successful practices in naturalistic approaches. As a matter of a fact, these exercises have largely been regarded as the foremost techniques to developing L2 lexis (Sternberg, 1987; Hunt and Beglar, 2005; Takač, 2008; Nation and Chung, 2009).

Nevertheless, foreign language learning contexts seem not to be favourable environments to acquire vocabulary in an incidental way since the L2 learner is not likely to encounter a word numerous times so as for it to be naturally acquired (Folse,

[1] The natural approach is a method of language teaching which aims at encouraging naturalistic language acquisition in a classroom setting. It emphasises communication, and places decreased importance on conscious grammar study and explicit correction of student errors (Krashen and Terrell, 1983).

2004). In addition, a learner must have a large L2 vocabulary to be able to guess the meaning of unknown words from surrounding context clues successfully. Such a precondition entails that less proficient students are at a disadvantage as they are likely to face considerable difficulties in increasing their L2 lexicon by inferring unknown word meanings from unclear contexts. Along these lines, many researchers have considered incidental vocabulary learning to be a slow and inefficient process (Sökmen, 1997; Laufer, 2005; Takač, 2008). Accordingly, explicit instruction is seen as particularly essential for foreign language learners, and more especially beginners, whose lack of vocabulary limits their reading or understanding abilities (Folse 2004; Anuthama, 2010).

In direct or explicit vocabulary approaches, learners are encouraged to do exercises and activities that focus their attention specifically on increasing their vocabulary. Systematic vocabulary instruction typically include the following components: (1) teacher demonstrations and modelling of vocabulary skills, (2) clear explanations and examples of the words being taught, (3) teacher support during instruction, and (4) multiple opportunities for students to practice and apply newly learned skills (Carnine *et al.*, 2006).

It is commonly believed that strategies that take form as the principal path to meaning are more efficient for foreign language learners since they enhance memorisation. For young learners, the spoken form should have priority, but written forms can be introduced as soon as learners become literate in the foreign language (Nattinger, 1988). Once learners have met and paid special attention to the form of a new word, their vocabulary learning process has begun. In the first stage, the word being taught explicitly enters the learner's short term memory. Then, the next teaching issue should be to build up the memory of the word so that it is available for use in the

longer term (Cameron, 2001). As it has been stated above, repetitive vocabulary teaching is necessary for items to be able to be recalled in the long term.

Specifically for young language learners (YLLs), a learner-centred perspective in which knowledge about the students' learning is central is particularly essential since YLLs present very specific characteristics that differ largely from those of adults. On the one hand, children are believed to be more enthusiastic and lively learners but to have considerably shorter attention spans compared to adults. Thus, using interactive and fun activities as well as changing tasks frequently are fundamental practices for these learners (Cameron, 2001). Another aspect characterising young learners is their incapability to comprehend abstract ideas. While adults benefit from understanding and accessing metalanguage, young learners do not have a concept of ideas such as parts of speech, discourse or phonology. Children are very much linked to and interested in the physical and the tangible (Hasselgreen, 2000; Brown, 2001; Cameron, 2001; Bourke, 2006; Shin, 2006). Hence, YLLs need the new language to be presented through special methods.

Focusing particularly on vocabulary teaching, exposure to very concrete language that connects with objects young learners can handle or see is crucial in order to develop YLLs' mental inventory of lexical items (Cameron, 2001). Techniques used to increase young learners' vocabulary include presenting realia that students can experiment with, making use of mime, presenting illustrative situations in which vocabulary is introduced and using visual aids (Scott and Ytreberg, 1990; Cameron, 2001; Pinter, 2006). The use of pictures has been especially highlighted in memory research since it has been asserted that pictures are remembered better than words. Such a phenomenon has been given the name of the picture superiority effect (Carpenter and Olson, 2012).

All in all, learners should be encouraged to use memorisation strategies when dealing with new vocabulary. Yet, practicing the new language in meaning-focused output situations where children have control over the choice of language is equally important (Pinter, 2006). Many researchers agree on the fact that the distinction between implicit and explicit vocabulary learning is not to be regarded as an either-or relation but rather as a continuum. Hence, the consensus seems to be a compromise between explicit and implicit lexical instruction (Carter, 1998; Hunt and Beglar, 2005; Laufer, 2005; Nation, 2005). Such a balance is summarized by Nation (2005) in his claim that "every course should involve some delirberate attention to vocabulary as well as opportunities to meet the words in meaning-focused use" (p. 585).

2.3 The Use of the L1 in Foreign Language Vocabulary Learning

The issue of whether to approach instructional practices that use L1 equivalent forms as a way of teaching FL lexical items has always been a subject of controversy. In foreign language teaching, there appears to be a preference for intralingual strategies, which involve explaining the target language through the target language, over interlingual strategies, which make use of the L1 (Liu, 2009). As far as the relationship between L1 and L2 is concerned, it has been asserted that since the first language and the other language or languages are in the same mind, they are not completely isolated systems but instead they form a language super-system (Cook, 2003). Taking into account that there exists a connection between the L1 and the L2 lexicons (see section 2.2), it follows that the use of the mother tongue in the classroom could constitute a useful tool to support foreign language learning in an efficient way.

Nevertheless, translation has largely been ignored as a valid activity for language practice and improvement (Duff, 1989). The first language has even been considered 'the villain' in second language learning, the major cause of a learner's

problems with the new language (Dulay, Burt and Krashen, 1982). Furthermore, translation has been believed not to be a suitable exercise to use with young learners since, according to these views, they need to have acquired a significant level of proficiency in the L2 language before they can tackle translation productively (Marsh, 1987).

Although there seems to be a general negative view regarding the use of the L1 in L2 learning, the positive role of the mother tongue has also been acknowledged as it has been proved to be a rich resource which, if used judiciously, can assist second language teaching and learning (Cook, 2003). Cameron (2001) states that when new words are encountered, pupils need support to work out their meaning and the device of giving a translation into first language may really help in this process. Evidence from several studies have demonstrated that the L1 is active during L2 lexical processing in both beginning and more advanced learners (Hall, 2002; Sunderman and Kroll, 2006).

Liu (2009) carried out a study to explore whether the use of the L1 in teaching facilitated the L2 learners' understanding of the meanings of new words. A total of 112 first-year undergraduates of non-English majors in Qingdao University of Science and Technology were selected for the study. The subjects were given a test composed by 60 words taken from an essay and they were asked to write the corresponding Chinese translation to the words already known to the subjects. Immediately after this test, the subjects were required to read the essay. Afterwards, the participants were given a brief explanation of the essay so as to facilitate their comprehension. During this process, the teacher explained the 60 words and expressions included in the first test. The experimental group was given the explanation of the words both in English and in Chinese whereas the control group was only given the English meanings. Results of a test administered three weeks later clearly showed that the experimental group

performed much better -the difference being statistically significant- than the control group. Such a fact gave evidence to state that the bilingual teaching method facilitated the subjects' vocabulary acquisition.

Lotto and de Groot (1998) compared word-association and picture-association methods with native Dutch speakers learning Italian. Word retention scores indicated that the practice of giving L1-L2 word pairs provided a better opportunity for learning L2 vocabulary than picture-L2 pairs. In another study, taking Hebrew speakers studying English, Laufer and Shmueli (1997) compared four models of presenting vocabulary which included (1) words in isolation, (2) words in minimal context, (3) words in text context, and (4) words in elaborated text context. Results showed that less information was better. On the other hand, from the results it was also extracted that words glossed in the L1 were always retained better than words glossed in English regardless of presentation mode.

Recruiting advanced Dutch learners of L2 French, Hulstijn, Hollander and Greidanus (1996) investigated the effects of dictionary use and marginal glosses on vocabulary retention. Participants were asked to read a text under one of the following conditions: Marginal-Glosses, Dictionary or Control. Students were then tested for their recall of 16 words that had appeared at least once in the text. Support was found for the hypothesis that adding the target words' L1 translation in the text significantly improved retention among advanced learners. Van Hell and Candia Mahn (1997) suggest that experienced learners having an increasing experience in foreign language learning, prefer to associate the new vocabulary with the corresponding L1 words to achieve the most efficiency.

As far as beginners are concerned, in a study carried out with English speakers learning French, Prince (1996) found evidence to state that less proficient students are

also able to recall more items when they learn the words in the translation condition. Similarly, Grace (1998) also gave support for translation resulting in learners retaining more words. In this study, translation was considered the preferred option for the L2 beginners since it provided an opportunity for learners to double check the meanings of words. Considering young beginners, Sieh (2008) conducted a study aiming at investigating the way children process and store English Vocabulary in initial stages of L2 learning. More specifically, the status of the L1 in L2 vocabulary learning was explored by measuring the students' accuracy and their reaction times in relation to visual and auditory stimuli. Sixty-four nine-year-old students from a suburban elementary school in southern Taiwan took part a story-telling programme focused on explicit vocabulary teaching. The experimental and the control group were discriminated by a pedagogical difference: the former was instructed only in English whereas the latter was provided with the Chinese translation equivalents to the selected English vocabulary. Results of the study showed that learners who were exposed to L1 translation not only gained more new words but they were also quicker in word retrieval. The author's conclusion is that the fact that the two languages were connected made not only retention of but also the access to English vocabulary much more effective.

Finally, taking into consideration age, Macaro and Lee (2013) explored whether English only instruction or teacher code-switching was differentially beneficial to young and adult learners regarding vocabulary learning and retention. Elementary school children who had been studying English for a few years and adults at university with demonstrably higher levels of proficiency were selected to examine whether the effects of using L1 as a vocabulary learning practice varied across contrastive age groups. Findings of this study suggest that although the use of the L1 was shown to be

more helpful for young learners than for older ones, both age groups benefited more from linking lexical items to their L1 translation than from being provided with definitions or paraphrases. All in all, research seems to give evidence to consider the L1 to be a useful tool when approaching vocabulary learning, both for young and adult learners.

3. METHODOLOGY

As indicated in the Introduction, the goal of the present experiment is to investigate whether the use of the mother tongue in teaching vocabulary helps learners retain and access new words in a more effective way. Exposing one group to the L1 translation of a set of selected lexical items and giving just the English input to the other group will be the practice used to analyse exposure to translation in terms of lexical retention, memory effects and lexical access.

3.1 Participants

A total of 46 students from two fifth grade groups of a Catalan primary school took part in the present study. The pupils were all aged between 10 and 11 at the time of the study. From the total number of participants, six students were excluded from the sample. One of them had severe learning difficulties, three children missed one of the tests administered and the other two had been schooled in the target school for less than two years. Hence, the number of participants for the study was reduced to 40.

The two groups were distinguished by a different instructional practice in relation to explicit vocabulary teaching. The control group was instructed in English only whereas the experimental group was provided with the L1 translation of the chosen lexical items. The control group was composed of 19 students (8 male and 11 female)

and the experimental group consisted of 21 participants (8 male and 13 female). Hence, as far as gender is concerned, although the percentage of female students is slightly higher in the experimental group, the two groups are fairly balanced (Figure 1).

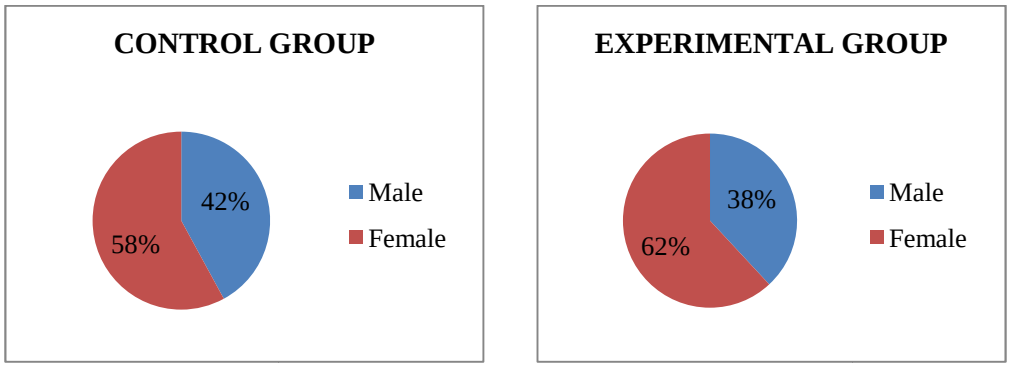

Figure 1: Gender distribution

With regards to the place of birth, the vast majority of pupils were born in Sant Hilari Sacalm (Figure 2), where the selected school is located. A minority of students were born in some other cities but still within Catalonia. Considering immigration, in both groups there were a number of students who were not born in Catalonia: 16% in the control group and 14% in the experimental group. Nonetheless, all the immigrants selected for the study had been schooled in the Catalan school for at least six years, all of them were completely adapted both to the classroom as a group and to the school curriculum and they could all perfectly speak and understand Catalan. The main country of migration was Morocco in both groups.

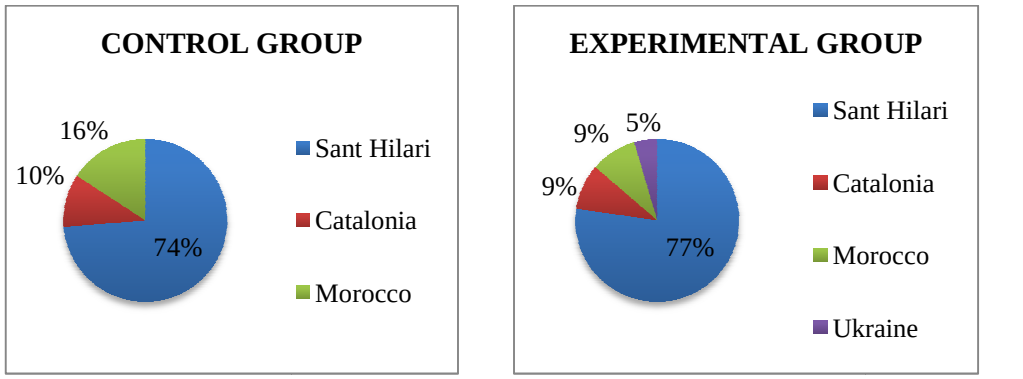

Figure 2: Place of birth

The languages spoken at home were the official ones: Catalan, Spanish or both, for the majority of the students (Figure 3). Even though some children reported using one language over the other, all of them were Catalan and Spanish bilinguals. In both groups, the most widely used language at home was Catalan, namely 53% of the children in the control group and 52% of the children in the experimental one. As far as Spanish is concerned, it was used by 4% of the students in the control group and by 14% of the students in the experimental group. Finally, as for languages other than the official ones, Arabic was spoken at home by 16% and 14% of the students in each group. Within the experimental group, a child reported using Ukrainian at home and another one said he used Catalan with her mother and Portuguese with his father.

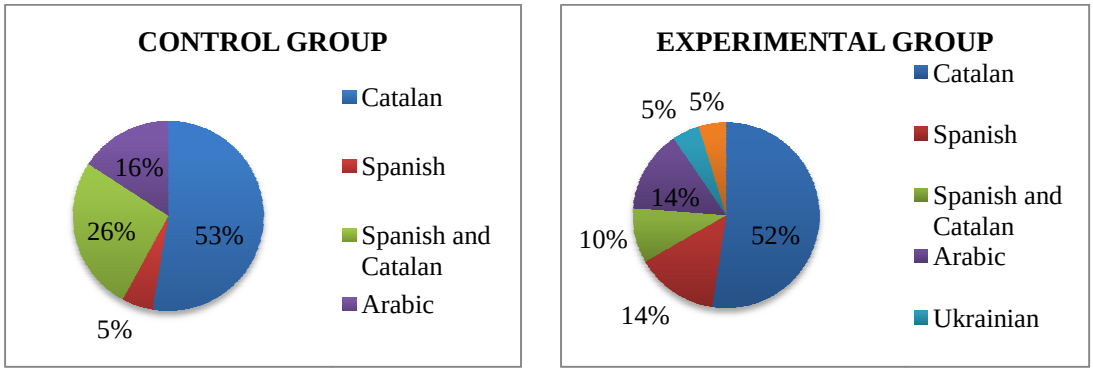

Figure 3: Languages spoken at home

With regards to educational backgrounds, all the subjects had been attending the same kind of schooling for at least six years. They all started curricular English instruction when they were five years old and from that age on they had been exposed to three hours of English as a Foreign Language (EFL) a week. Apart from these curricular hours of English, some of the participants reported that they were or had been attending extra English lessons. In the control group, there were 11 students attending extra classes and 8 who had never attended them. As for the experimental group, 12 students

had attended them and 9 had not. Hence, the percentage of students attending and not attending private lessons is balanced between the two groups (Figure 4).

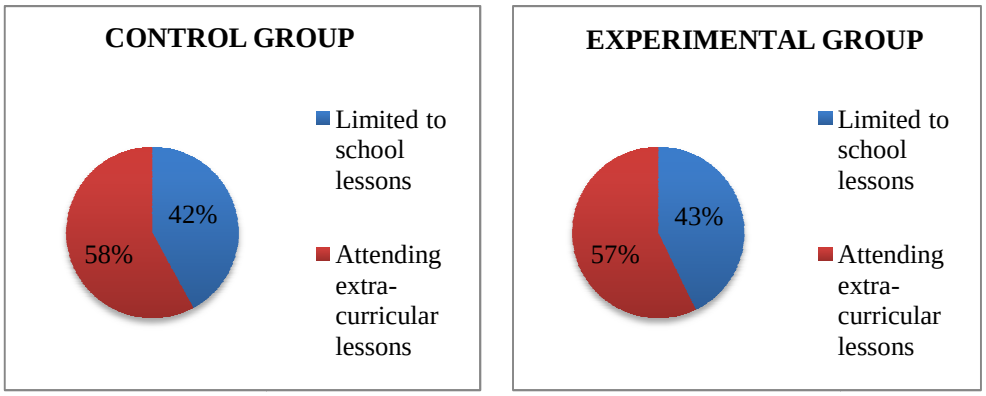

Figure 4: Exposure to English lessons

Among the participants who reported attending extra-curricular lessons, a great variability in the number of hours per week as well as in the number of months/years that children had been exposed to these lessons was observed. As for the number of hours per week, extra exposure to English represented, in the vast majority of cases, as little as 1 hour or, at the most, two hours a week. With regards to the length of time, for children who had been attending extra lessons, values ranged from 5 months to 4 years, although many of the ones who had been involved in these lessons for years reported that their attendance had been irregular.

3.2 Materials, Design and Procedure

Explicit vocabulary teaching through storytelling was the practice employed in order to investigate whether the use of the mother tongue in vocabulary teaching helps learners retain and access new words in a more effective way. The chosen story for the study was *The Tale of Peter Rabbit* (Potter, 1902), from which a total of 20 lexical items were selected to be explicitly taught. Such a story was considered suitable for the purpose of the study for two reasons. First, it presents a simple plot which would enable

students to focus not only on the story line but also on the selected vocabulary. Secondly, the fact that the story develops in a rural setting helped finding many specific vocabulary items that were most certainly not previously known by the subjects. Such a fact was further assured with the administration of a pre-test (see Appendix F and further explanation in this section).

Initially, storytelling was supposed to be carried out using only some flashcards with images of different scenes of the story. The exercise of telling the story was piloted with a different group of 10 year-olds. The use of flashcards made the lesson little dynamic and "rather boring", as reported by some of the children. It was very difficult to grasp their attention, as they would stop listening and even talk among themselves. The pilot study indicated that the story might have been too simple in terms of plot to hold the interest of 10 year-olds or else that the non-dynamic nature of flashcards was seen as extremely unfashionable to kids who have grown up surrounded by technology. Having these considerations in mind, a second pilot experiment was conducted, this time using a video of the tale to present the story and flashcards of some items that would be used not to explain the story but to emphasize the selected vocabulary. A flashcard containing an image and its spelling counterpart was designed for each of the 20 items to be tested (see Appendix B). This second pilot resulted in all the students carefully listening to the story. They even asked for the story to be played again. Hence, using a video[2] to present the story was selected as the practice to be used in the actual study (see Appendix A for the transcribed dialogue of the video).

Having all the materials ready for the study, a vocabulary test was administered as an achievement test to ensure that the two initially selected groups were comparable. The test was designed adapting some exercises from the textbook the participants used

[2] https://www.youtube.com/watch?v=MisrUJX3QGU

in their previous school year: *Incredible English 3* (Phillips and Morgan, 2007). Students were given different sets of 5 to 8 thematically related images with a total of 32 which they had to match with their corresponding spelling (see Appendix D). The results of the vocabulary test in each group were compared by means of an independent samples t-test. Although the experimental group scored slightly higher (M= 17.29, SD= 3.10) than the control group (M= 17.00, SD= 2.31), the difference was not statistically significant: t(38)=.326, p=.746.

Once the two groups were shown to be comparable in terms of their capacity to retain vocabulary, a biodata questionnaire aiming at gathering information on the age, gender, educational backgrounds and linguistic habits of the participants was given to all the subjects (see Appendix C and section 3.1 for the results). In addition, a pre-test was carried out to make sure the participants were not familiar with the selected lexical items prior to instruction (see Appendix F and section 4 for the results). The pre-test included the 20 key items from the story which were divided into three parts so as for the young learners to be able to quickly make their choice among six to eight pictures. Students had to listen to a recording and number a set of lexical items. They had to write down the number preceding a lexical item on the test sheet which had pictures of the objects corresponding to the selected lexical items. Prior to the administration of such a test, a corresponding mock test based on different lexical items was projected on the board and completed in front of the participants (see Appendix E). The mock test was based on lexical items known by the subjects, namely fruits. The aim of such a test was to make sure the participants had understood the instructions given to fill in the actual test. In order to design the recordings for the mock test, the pre-test and the following post-tests, two different native speakers were asked to utter numbers from 1

to 8 followed by the target lexical items. The clearest recording was the one used for the tests.

After the students had completed the pre-test, two sessions of storytelling were devoted to each group, leaving a period of three days between one session and the other. For both groups, the video was played twice and during the second reproduction, it was stopped whenever a lexical item selected for the study appeared. Every time the story was paused, the flashcard of the particular item was shown to the pupils. Repetition was also encouraged every time a target lexical item appeared. For the control group, only the English names of the objects were uttered. On the other hand, the experimental group was provided with both the English name of the object and its translated counterpart for each item. Since Catalan is the official language in the education system in Catalonia, this was the language used for L1 translation.

Immediately after the second story session, a post-test (post-test I) having the same format as the pre-test was administered to both groups in order to explore the vocabulary gain with respect to the pre-test (see Appendix G and section 4 for the results). A second post-test (post-test II) took place four days after the last story session. The test being carried out a few days later enabled to include memory effects as a further variable of analysis to the study (see Appendix H and section 4 for the results).

A week after the students were exposed for the last time to the story and hence to the instructed vocabulary, children were asked to complete a computerised test designed with *TP Worken*[3] measuring reaction times (RT). Such a test was used to determine the time subjects took to match auditory and visual cues and, hence, to check which group accessed the vocabulary with greater and faster ease. In other words, the role of L1 was examined as being either an obstacle or a facilitator in terms of

[3] http://www.worken.com.br

vocabulary access. After the completion of the computerised test, a short individual interview was carried out with all subjects. The purpose of this interview was to ask subjects whether translations came to their minds after listening to the audio and before clicking the right image so as to explore in a more qualitative and explicit way whether L1 translation influenced their choice.

Finally, a third and last post-test (post-test III) was administered after a month in order to examine whether the students still maintained the vocabulary they proved to have learnt (see Appendix I and section 4 for the results). This test also served to analyse long-term memory effects. It is important to highlight that participants were continually reminded before tests that the results were used exclusively for the study and would not count towards their school final mark.

3.3 Data Analysis

Both quantitative and qualitative data were collected in the present study. Data from the two groups were coded in SPSS according to the distinct tests carried out. Intergroup comparisons between the control group, which was exposed to English only, and the experimental group, which was given L1 translation, were made through independent-samples t-tests, which examined the differences between the results of the two groups in relation to the pre-test, post-tests and Reaction Times test. On the other hand, intragroup comparisons were carried out by means of paired-samples t-tests which explored the individual evolution of each group from post-test I to post-test III. Finally, data collected from the recorded interviews with the participants were transcribed and analysed to explore from a qualitative point of view whether participants resorted to the L1 when accessing the L2 lexical items.

The pre-test and the post-tests were all scored out of 20. The vocabulary test was scored out of 32 but later calculated out of 20 for the sake of simplicity. In all these tests, a score was given to each correct answer and no scores were given for incorrect ones. As for the computerised test, accuracy was not considered a variable of analysis since participants were asked to choose the correct answer between just two pictures. This meant that the nature of this test was completely different from that of the post-tests, in which the choice was made among six to eight pictures. In order to analyse the learners' reaction times, the mean time of reaction of each participant was calculated in seconds excluding incorrect responses.

4. RESULTS OF THE STUDY

With the aim of ensuring not only that the participants were not familiar with the selected lexical items prior to instruction but also that the two groups had roughly the same previous knowledge about the words, results of the pre-test were analysed using independent-samples t-test. As it was expected, both groups scored very low in this test: M=5.42, SD=3.67 for the control group and M=5.43, SD=3.11 for the experimental group and the very slight difference found between the two groups resulted not to be significant: $t(38)=.007$, $p=.994$[4].

Regarding the first post-test, which was carried out immediately after the participants were exposed to the vocabulary items for the second time, no statistically significant differences ($t(38)=.406$, $p=0.687$) were found between the control group (M=17.05, SD=2.78) and the experimental group (M=17.33, SD=1.46). Not until some time was allowed between exposure to instruction and administration of the tests did the two groups start to show significant contrasts among them. The second test, which was

[4] The level of significance will be $p < 0.05$ all throughout the analysis.

carried out four days after the second storytelling session, already showed significant differences between the two groups (t(38)=4.472, p=.000). The mean score for this test was 15.00 (SD=3.93) for the control group and 19.23 (SD=1.34) for the experimental group. Significant differences between the two groups were maintained in post-test III (t(38)=3.450, p=.002) where, again, the experimental group scored higher (M=17.48, SD=2.56) than the control group (M=13.84, SD=3.89).

As far as the computerised test is concerned, the average time in seconds that students took to react to the auditory cues was also analysed using independent-samples t-tests. Considering reaction times, the control group (M=2.71, SD=0.71) responded consistently faster than the experimental group (M=2.16, SD=0.46) and the difference was proved to be statistically significant t(38)=-2.98, p=.005. The interviews carried out right after the completion of the RTs resulted in 76% of the participants in the experimental group admitting that Catalan translations had occurred to them during the RTs test. Conversely, only 42% of the control group subjects reported having mapped the cue with the Catalan translation. The majority of them further stated that they recalled the images that were used during instruction.

Table 1: Intergroup comparison of scores obtained in the various tests between the control and the experimental group.

	CONTROL GROUP (N=19)		EXPERIMENTAL GROUP (N=21)		t-test	
	M	SD	M	SD	*t*	*p*
Pre-test	5.42	3.67	5.43	3.11	0.007	0.994
Post-test I	17.05	2.78	17.33	1.46	0.406	0.687
Post-test II	15.00	3.93	19.23	1.34	4.472	*0.000
Post-test III	13.84	3.89	17.48	2.56	3.450	*0.002
Reaction Time	2.71	0.71	2.16	0.46	-2.98	*0.005

Figure 5 shows the two groups' evolution from the pre-test to post-test III. The graphic illustrates that both groups went through a considerable and statistically similar word growth from the pre-test to post-test I. With respect to the evolution from post-test I to post-test II, whereas the control group experimented a decrease in word retention, the experimental group managed to recall more words in post-test II than in post-test I. Finally, both groups went through a word decrease in from post-test II to post-test III, which was carried out a month after the participants had been exposed to the target lexical items for the last time.

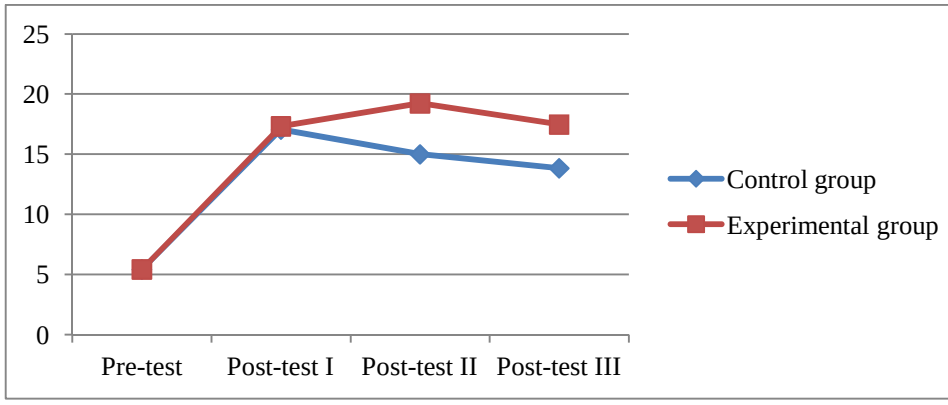

Figure 5: Group evolution from post-test I to post-test III

In order to explore the overall group evolution from post-test I, the first test carried out after exposure, to the last test, namely post-test III, results of these two tests were analysed using a paired-samples t-test. A period of one month in which students were not given any instruction of the target words was left between these two tests. As displayed in Table 2, there are statistically significant differences in word retention in the comparison of results for post-test I and post-test III for the control group but not for the experimental one. More specifically, the analysis of the paired-samples t-test for the control group showed that the mean of the lexical items retained differed significantly ($t(18)= 4.71$, $p=.000$) from post-test I ($M = 17.05$, $SD = 2.79$) to post-test III ($M =$

13.84, SD = 3.89). As for the experimental group, word retention for the target lexical items did not show a significant difference (t(20)= -.269, p=.791) from post-test I (M=17.33, SD=1.46) to post-test III (M=17.48, SD=2.56). Hence, although a month was left between the administration of the two tests, the participants provided with the L1 translation of the lexical items did not show a statistically significant decrease in word retention.

Table 2: Intragroup comparison of the students' performance in post-test I and post-test III.

	Post-test I		Post-test III			
	M	SD	M	SD	*t*	*p*
Control Group (N=19)	17.05	2.79	13.84	3.89	4.71	*.000
Experimental Group (N=21)	17.33	1.46	17.48	2.56	-.269	.791

5. DISCUSSION

The present study aimed at examining whether English-only instruction or the use of L1 translation caused a different impact on young learners' retaining and accessing English vocabulary. In line with previous research carried out in foreign language vocabulary learning and as it was hypothesised (Prince, 1996; Hulstijn *et al.*, 1996; Laufer and Shmueli, 1997; Van Hell and Candia Mahn, 1997; Grace, 1998; Lotto and de Groot, 1998; Sieh, 2008; Liu, 2009; Macaro and Lee, 2013), results of this study show that the experimental group, which was provided with L1 glosses, performed significantly better than the control group in terms of both long-term vocabulary retention and lexical access.

On the basis of the results obtained by both groups in the immediate test (post-test I) and as regards research question (1), the present study suggests that both teaching practices promoted an immediate recall of the English lexical items since both groups performed considerably well and statistically similarly in terms of short-memory vocabulary retention. According to Maye and Gerken (2001), words presented in verbal (including written and spoken text) and visual (including pictures and video) forms, enter the learners' sensory memory through the visual and the auditory channels and then a number of these words enter short-term memory, where they are temporarily held. Thus, it seems that both providing students with the pictorial and the English input in one group and using the pictorial and the English and Catalan word forms in the other group made lexical items enter the short-term memory system.

Still in relation to research question (1), using L1 translation proved to have a statistically significant positive effect on young learners' long-term vocabulary retention. Even though the two different instructional practices did not entail contrastive effects on the learners' immediate vocabulary retention, the learners' performance in post-test II and post-test III demonstrated that code-switching resulted in young learners retaining more words and for longer periods of time.

More specifically, results of post-test II, which was carried out four days after exposure to the items through storytelling, showed not only that the English-only participants experimented a word decrease as some time was allowed after exposure but also that the L1-translation group managed to recall more words than in post-test I, telling the two groups significantly apart. Thus, it appears that providing students with the L1 translation of the lexical items promoted a delayed memory effect in that it seems that the connection between the L2 word-form and its L1 equivalent showed its beneficial effects not immediately after exposure but as some days were left after

instruction, that is to say, in the long term. Hence, apparently both groups relied on the connection of the auditory and the visual cues in post-test I, since they had just been listening and exposed to the story and the flashcards. Yet, in post-test II, participants did not have the visual and the auditory stimuli fresh in their minds and the experimental group, who could instead make use of the L1-L2 connection with which they were provided during instruction, managed not only to maintain the number of right answers for post-test I but to increase it. On the other hand, the control group failed to make such connection and thus, they went through a memory decrease.

Considering the last post-test, although from post-test II to post-test III the experimental group also underwent a word decrease, this was statistically different from the more considerable decrease experimented by the control group. In fact, considering the overall group evolution, no statistically significant differences were found between post-test I and post-test III for the experimental group whereas the word decrease from these two tests was significant for the group that was not provided with the L1 equivalents of the target lexical items. In connection to the first research question, such a fact implies that providing young learners with both the L1 and the L2 forms of lexical items does have an impact over their vocabulary gain since the connection of the two languages at the lexical level seems to make retention of English vocabulary easier.

Research has found that since learners exposed to a foreign language possess a well-established L1 conceptual and lexical system, L2 words are likely to be linked to the already existing L1 conceptual representations. The fact that this study was carried out with young learners gives further support to predict the participants' reliance on the L1 translations since it has been attested that strong links between a concept and its L1 lexical representation exist at initial stages of foreign language learning (Kroll, 1993; Kroll and Stewart, 1994; Kroll and Sunderman, 2003; Kersten, 2010; Macaro and Lee,

2013). Consequently, and as it has been shown in the present study, the code-switching teaching practice enhances the connection between the L2 and the L1 word forms and ultimately facilitates young learners' retention of new vocabulary. The interviews carried out in the present study lend further support to the claim that participants provided with the L1 translation accessed the L2 words through their L1. Conversely, because of their limited proficiency in English, the control group consistently failed to access and recall the foreign language conceptual meaning for some words just from the context and this was shown by their substantial decrease in lexical retention from post-test I to post-test II and even more regarding post-test III.

As far as lexical access is concerned and in relation to research question (2), the fact that the control group would match words directly to their corresponding pictures and the experimental group had to process one more step accessing the L1 translation equivalents could well lead to the prediction that the control group would produce shorter reaction times. Nevertheless, and in line with previous research (Sieh, 2008) results of the computerised tests showed that code-switching was also beneficial in terms of lexical access since participants in the experimental group had shorter reaction times. Again, the stronger connection of L2 word forms to L1 representations in the experimental group made them outperform the control group also in terms of speed of lexical access.

As pointed out by Snodgrass (1993), connecting an L2 word to its translated equivalent yields a reaction time advantage for L2–L1 translation. Since L2 word forms are connected to L1 representations in early foreign language learning, the two groups had to locate the phonological cues to the L1 translation equivalents before the picture-decision was made. As suggested by Sieh (2008), the fact that the control group produced longer reaction times is linked to them having to undergo a further process:

situating the L1 representations for the L2 words. On the other hand, the experimental group managed to respond faster because of their readily-matched connection of English phonological forms to their L1 translation equivalents. Thus, instruction that provides students with the connection of L2 words into L1 forms seems to have a positive role for young foreign language learners in terms of both retention and access.

A number of limitations are acknowledged in the present study. First, the fact that students were administered four tests having the same format (pre-test, post-test I, post-test II and post-test III) could be considered a factor affecting their test-taking abilities in that although they were not given feedback on their performance, they acquired practice in filling in this kind of test. Moreover, the lexical items were randomly arranged in the different tests, which meant that inevitably some lexical combinations could have been easier for participants to match. Also, the usage of pictures to present vocabulary as well as the written input included in the flashcards could have played a role in young learners' vocabulary retention that may have diminished the L1-yes versus L1-no factor. As for the computerised test, participants had to make their choice among two pictures, which meant that they possibly had to access the word-form of both lexical items to be able to decide which one matched the auditory stimulus they had been given. Such a fact meant that the RTs did not accurately show whether the time used to match the auditory and the pictorial stimuli included the access to one or two lexical items. Finally, it would have been interesting to administer a written test in which students had to provide the L1 translation of the lexical items to see whether the participants not provided with the translation during instruction could really come up with the equivalents, and hence, to explore whether they relied just on the image or whether they really understood the meaning of the concepts.

Further research on this topic could include comparing the practice of using L1 equivalents versus English-only instruction in children of different ages, for instance pre and post critical period children, in order to see whether the use of the L1 is equally beneficial in different young age groups. It would also be interesting to look at more advanced levels since it seems clear that the L2 is connected to the L1 at the initial stages of the learning process, but it seems that as the learner becomes more advanced, reliance on the L1 decreases.

6. CONCLUSION

The present study aimed at exploring the role the L1 plays in young learners' retention of and access to English vocabulary. More specifically, the study has attempted to determine (1) whether the use of L1 translation aids short and long-term vocabulary retention and (2) whether the L1 acts as a facilitator in terms of lexical access.

Data were obtained from a pre-test and three post-tests to explore differences between and within the groups in relation to vocabulary gain and memory effects. A computerised test was conducted to measure possible differences between the groups in relation to lexical access. In line with previous research carried out in foreign language vocabulary learning, results of the present study showed statistically significant differences in the outcomes of the two contrastive instructional practices, benefitting the group who had been instructed using the L1 translation equivalents. Data collected from recorded interviews carried out with the participants also determined from a more qualitative point of view the strong tendency for students to resort to the L1 when accessing the L2 lexical items.

Results are accounted for by the fact that during the early stages of foreign language learning the L2 lexis seems to be most likely organised in subordination to the L1 mental lexicon. To conclude, although the use of the L1 is often neglected in the foreign language classroom, the present study suggests that the mother tongue can be used as a beneficial rather than a detrimental tool to promote foreign language vocabulary learning.

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APPENDICES

APPENDIX A: *PETER RABBIT* PLOT

(Once upon a time there were four little Rabbits, and their names were Flopsy, Mopsy, Cotton-tail, and Peter. They lived with their Mother in a sand-bank, underneath the root of a very big fir-tree.)

Mopsy: Mama said I could carry a basket.
Flopsy: Mama, mama she pulled my ears.
Mrs. Rabbit: Come come, that will do!

Mrs. Rabbit: Now my dears, you may go into the fields or down the lane, but don't go into Mr. McGregor's garden: your Father had an accident there; he was put in a pie by Mrs. McGregor. Now run along, and don't get into mischief. I am going out.

Then old Mrs. Rabbit took a basket and her umbrella, and went through the wood to the baker's.

Mrs. Rabbit: Now, a loaf of brown bread and, let me see... One, two, three, four, five currant buns.

Flopsy, Mopsy, and Cottontail, who were good little bunnies, went down the lane to gather blackberries. But Peter, who was very naughty, ran straight away to Mr. McGregor's garden, and squeezed under the gate!

Peter Rabbit: Mama will never find out.

(First he ate some lettuces and some French beans; and then he ate some radishes.)

Bird: Having a good time, aren't we?
Peter Rabbit: mmm... radishes! my favourite!!

Peter Rabbit: I can't wait to tell Benjamin!

Peter Rabbit: Oh dear! (Feeling rather sick)
Bird: Feeling funny, aren't we?
Peter Rabbit: Still... I better not leave that on its own; someone might notice it.

Bird: You wouldn't have a tummy ache, would we?
Peter Rabbit: I do feel rather sick...
Bird: Faster than Mr. McGregor, aren't we?
Peter Rabbit: Definitely, there's something wrong with that one... I best find a little bit of parsley.

(Round the end of a cucumber frame, there appeared Mr. McGregor!)

Peter Rabbit: Mr McGregor!!!! (Scared)
Mr McGregor: Stop thief!!! Come back here!!!!! (Running after Peter and waving a rake.)

Mr McGregor: Where is that rabbit?

(Peter was really frightened. He rushed all over the garden, for he had forgotten the way back to the gate. He lost one of his shoes among the cabbages, and the other shoe among the potatoes. After losing them, he ran on four legs and went faster, but then he unfortunately run into a gooseberry net, and got caught by the large buttons on his jacket. It was a blue jacket with brass buttons, quite new.)

Peter Rabbit: Where am I? Oh, is it this way? Oh, I don't know!! Perhaps it's this way! No! This way!

(Peter gave himself up for lost, and shed big tears; but his sobs were overheard by some friendly sparrows, who flew to him in great excitement, and encouraged him to escape.)

Sparrows: Come on! Go before Mr McGregor comes! Mr McGregor is coming! Quick!
Peter Rabbit: Mr McGregor will put me in a pie!! (Crying)

Sparrows: Come on, keep on trying!! Before Mr McGregor comes! Quick M McGregor is coming!! Try!! Come on, try!!

(Mr. McGregor came up with a sieve, which he intended to pop upon the top of Peter; but Peter wriggled out just in time, leaving his jacket behind him. Peter rushed into the tool-shed, and jumped into a watering-can. It would have been a good idea to hide in the watering-can, if it had not had so much water in it.)

Mr McGregor: (Entering into the tool-shed) I knew... That rabbit is here, somewhere...

(Mr. McGregor was quite sure that Peter was somewhere in the tool-shed, perhaps hidden underneath a flower-pot. He began to turn them over carefully, looking under each.)

Mr McGregor: Come on and show yourself! Are you here?

Peter: Kertyschoo!! (Sneezing)

(Mr. McGregor was after him in no time and tried to put his foot upon Peter, who jumped out of a window upsetting three plants.)

Mr McGregor: Stop!! Stop thief!!!!

(The window was too small for Mr. McGregor, and he was tired of running after Peter and he went back to his work. Peter sat down to rest; he was out of breath and trembling with fright, and he had not the least idea which way to go. He then found a door in a wall but it was locked, and there was no room for a fat little rabbit to squeeze underneath. An old mouse was running in and out over the stone doorstep, carrying peas and beans to her family in the wood. Peter asked her the way to the gate.)

Peter Rabbit: Could you tell me the way to the gate? Please help me!

(But the mouse had such a large pea in her mouth that she could not answer. She only shook her head at him. Peter began to cry.)

Peter Rabbit: But which way?

(Then he tried to find his way straight across the garden, but he became more and more puzzled. Presently, he came to a pond where Mr. McGregor filled his watering-cans. A white cat was staring at some gold-fish, she sat very, very still, but now and then the tip of her tail twitched as if it were alive. Peter thought it best to go away without speaking to her; he had heard about cats from his cousin, little Benjamin Bunny.)

Peter Rabbit: I must be quiet! Benjamin warned me about cats.

(He went back towards the tool-shed, but suddenly, quite close to him, he heard the noise of a hoe. Peter scattered underneath the bushes. But presently, as nothing happened, he came out, and climbed upon a wheelbarrow and peeped over. The first thing he saw was Mr. McGregor hoeing onions. His back was turned towards Peter, and beyond him there was the gate!)

Peter Rabbit: The gate! The gate! I can see the gate!

(Peter got down very quietly off the wheelbarrow; and started running as fast as he could go, along a straight walk behind some black-currant bushes. Mr. McGregor caught sight of him at the corner, but Peter did not care.)

Mr McGregor: Stop! Get back here! Stop thief!
Peter Rabbit: The gate! The gate! I can see the gate!

(He slipped underneath the gate, and was safe at last in the wood outside the garden. Mr. McGregor hung up the little jacket and the shoes for a scare-crow to frighten the blackbirds.)

Peter Rabbit: Oh, no! My clothes! My shoes! Mama will be furious!

(Peter never stopped running or looked behind him till he got home to the big fir-tree.)

Mrs. Rabbit: Peter... Late again! Where have you been? Not in Mr McGregor's garden again, I hope. And where are your clothes? I suppose you are going to tell me that you have lost them again. Don't you realise that is the second little jacket and pair of shoes you have lost in a fortnight? Go straight to bed without any supper!

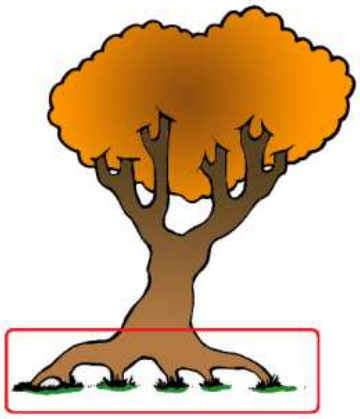
(Peter was so tired that he flopped down upon the nice soft sand on the floor of the rabbit-hole and shut his eyes.)

Mrs. Rabbit: I must say you don't look too well... I'll give you a dose of camomile tea. This should set you the rights... Mr McGregor garden, indeed!

Mrs. Rabbit: Go to sleep now.
Peter Rabbit: Good night, mama!

(Flopsy, Mopsy, and Cotton-tail had bread and milk and blackberries for supper.)

APPENDIX B: FLASHCARDS

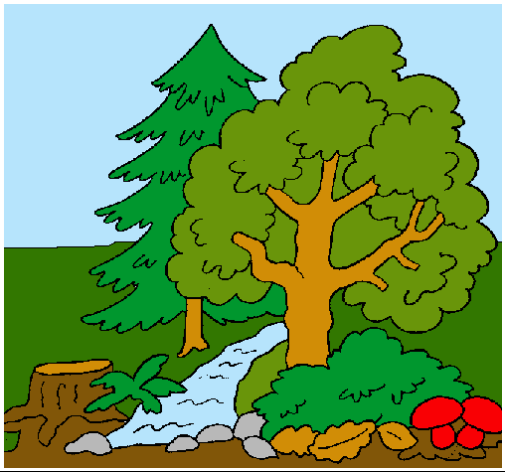


ROOT

BASKET

BLACKBERRIES

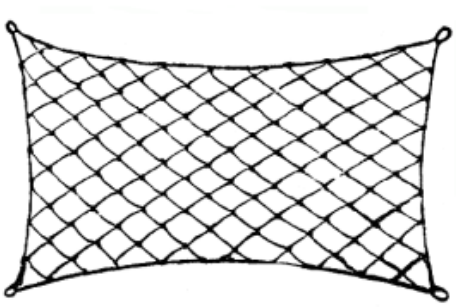
UMBRELLA



WOOD

FIRE

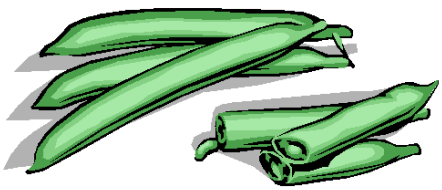
BAKERY



NET

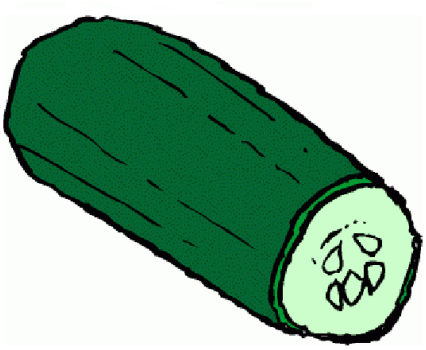
RAKE

PARSLEY

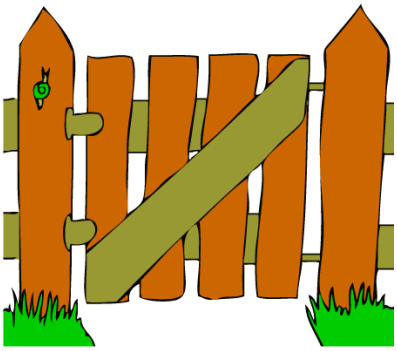


BEANS

LETTUCE



CUCUMBER



GATE

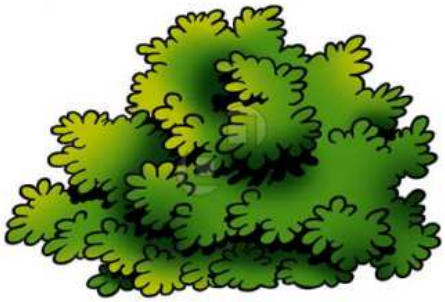
TOOLSHED

TEARS

SCARECROW

FLOWERPOT

WATERING CAN



BUSH

APPENDIX C: BIODATA QUESTIONNAIRE

BIODATA QUESTIONNAIRE	
NOM:	
DATA DE NAIXEMENT:	
LLOC DE NAIXEMENT:	
LLENGUA QUE PARLES A CASA:	
A QUINA EDAT VAS COMENÇAR L'ANGLÈS?	
FAS ANGLÈS COM A ACTIVITAT EXTRAESCOLAR?	
DES DE QUAN EN FAS?	
QUANTES HORES FAS A LA SETMANA?	

APPENDIX D: VOCABULARY TEST

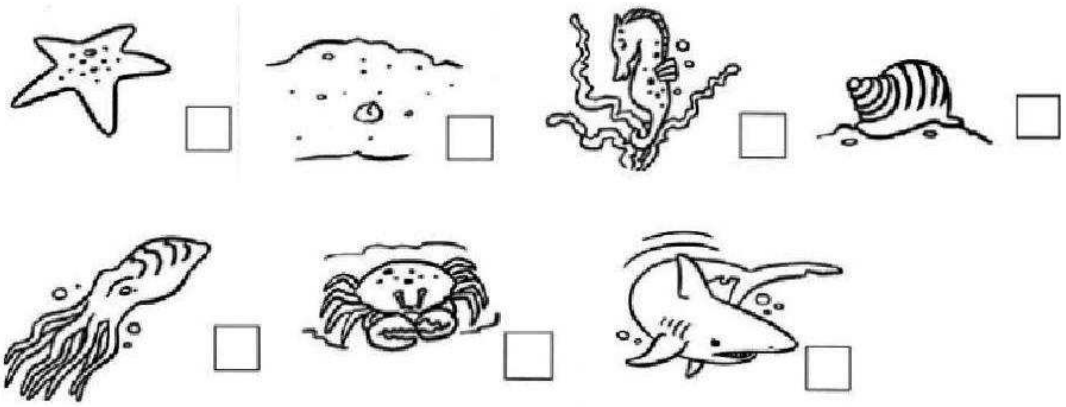
Name:

VOCABULARY TEST

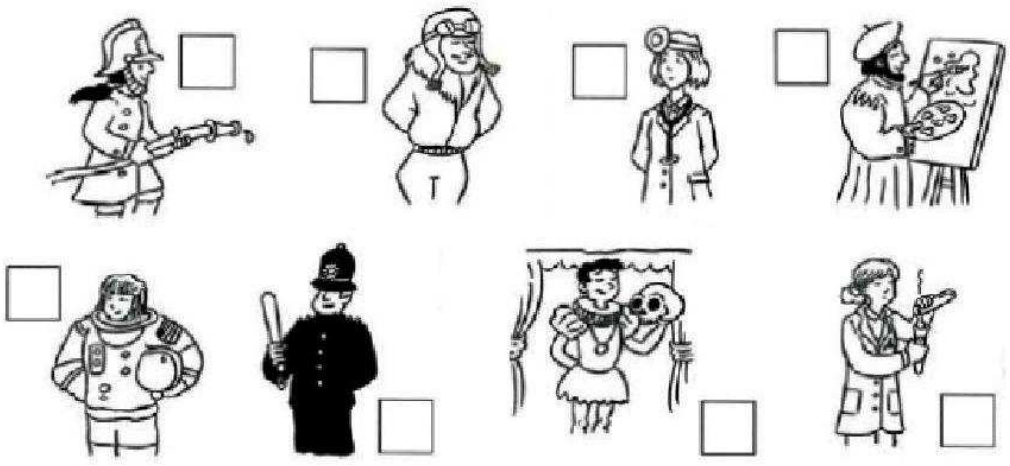
(Adapted from Incredible English Kit 4)

Number the pictures:

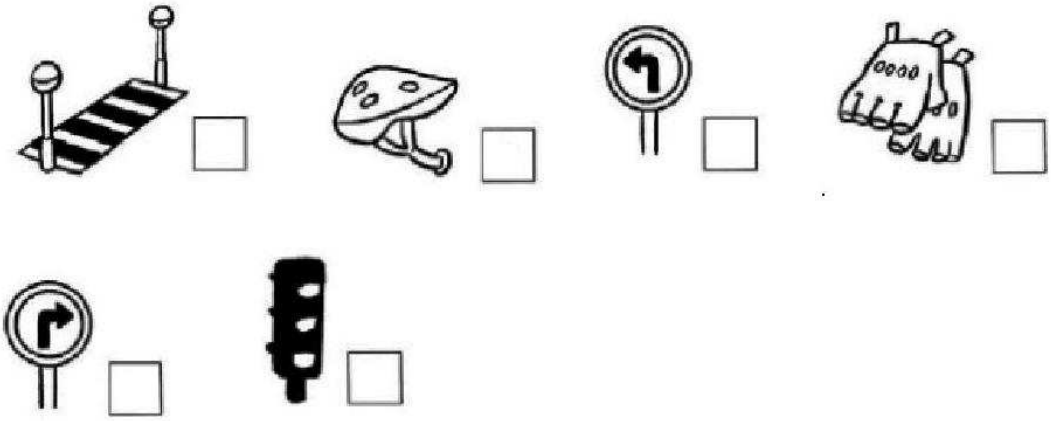
1. SHELL	2. SHARK	3. OCTOPUS	4. SEAHORSE
5.SAND	6.CRAB	7. STARFISH	



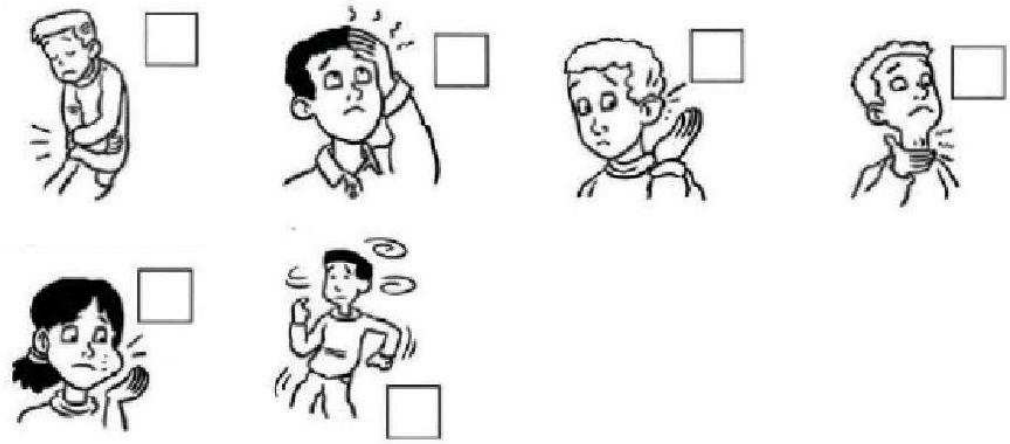
1. ARTIST	2. SCIENTIST	3. ASTRONAUT	4. DOCTOR
5.FIREFIGHTER	6. PILOT	7.POLICEMAN	8. ACTOR



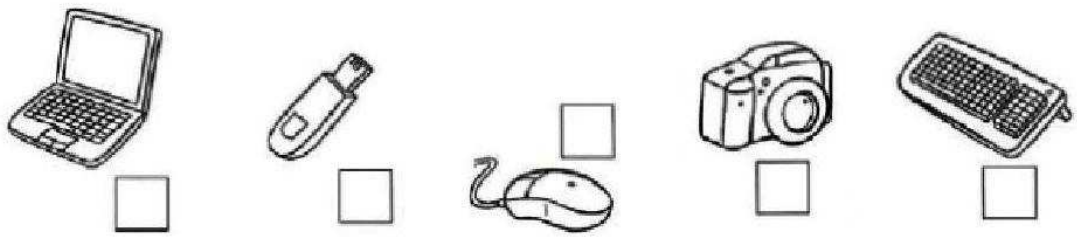
1. GLOVES	2. HELMET	3. TURN LEFT	4. TRAFFIC LIGHTS
5. ZEBRA CROSSING	6. TURN RIGHT		



1. EARACHE	2. SORE THROAT	3. HEADACHE	4. DIZZY
5. TOOTHACHE	6. STOMACH ACHE		

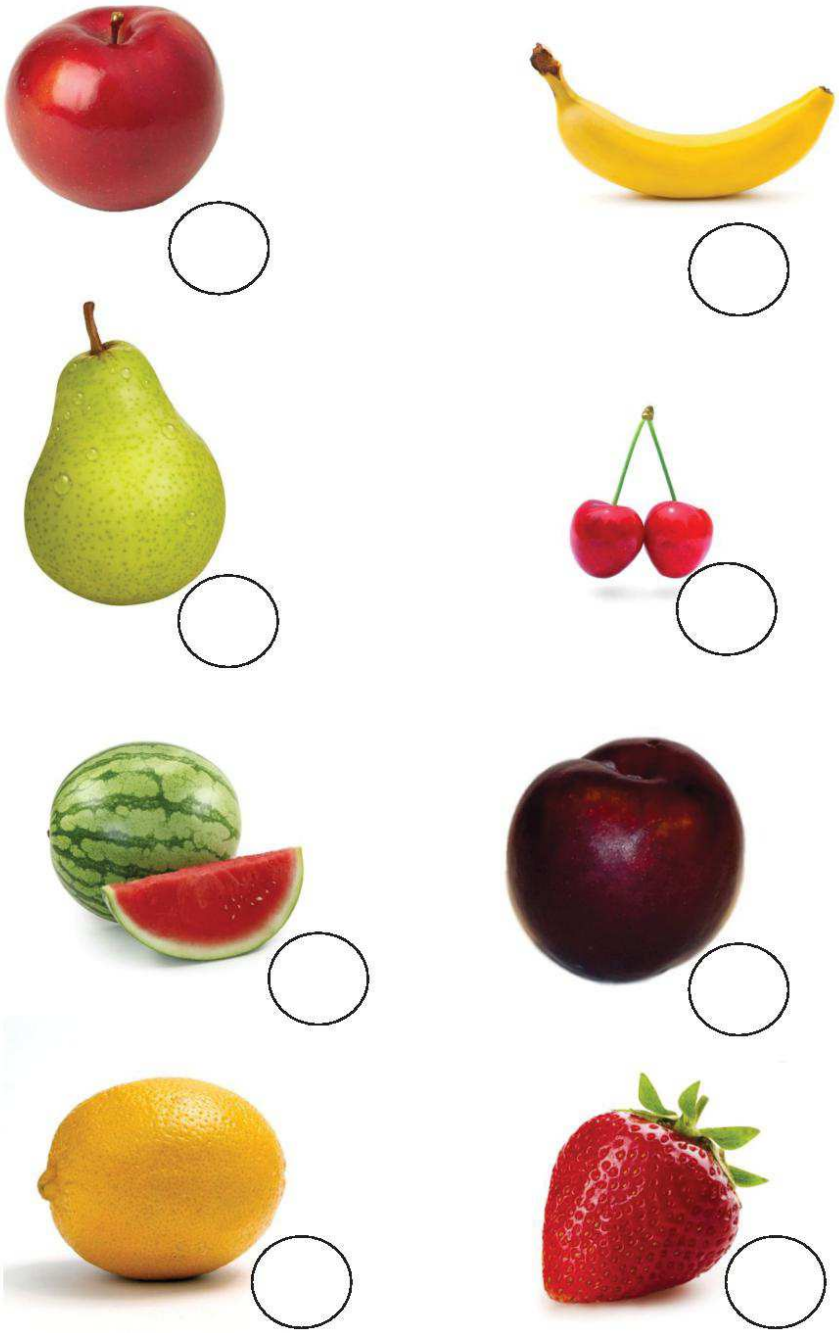


1. MOUSE	2. LAPTOP	3. CAMERA	4.MEMORY STICK
5. KEYBOARD			



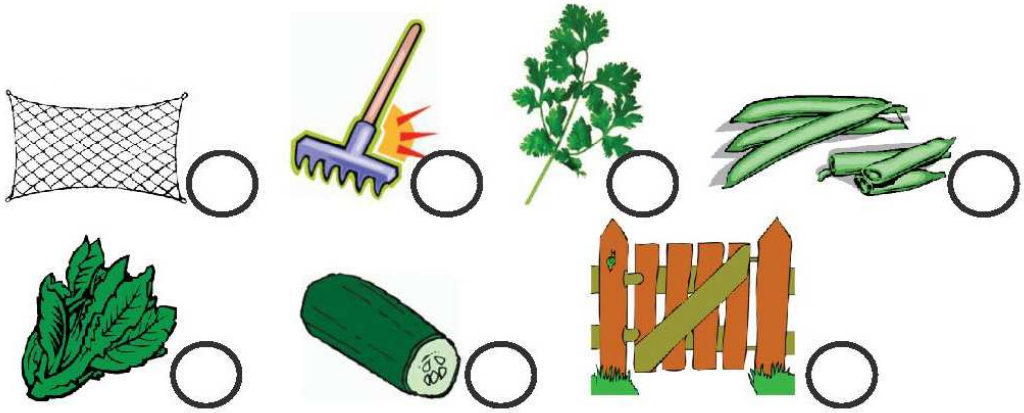
APPENDIX E: MOCK TEST

SAMPLE TEST



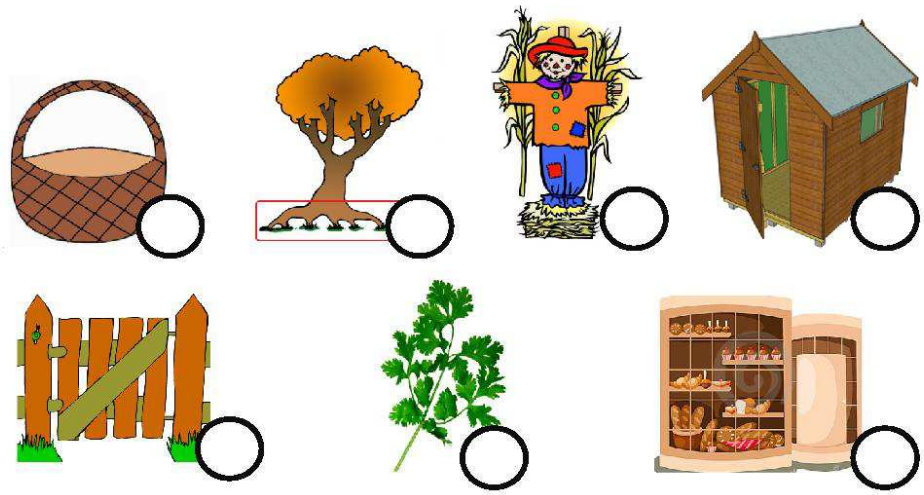
APPENDIX F: PRE-TEST

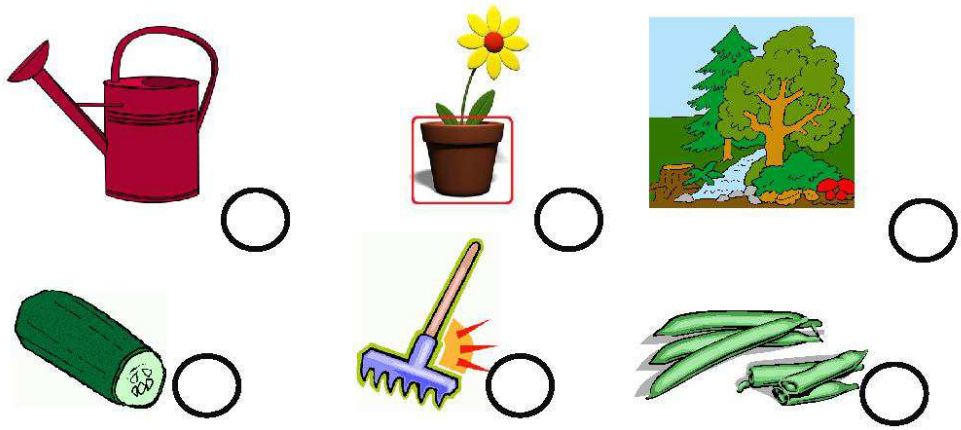
PRE-TEST NAME:



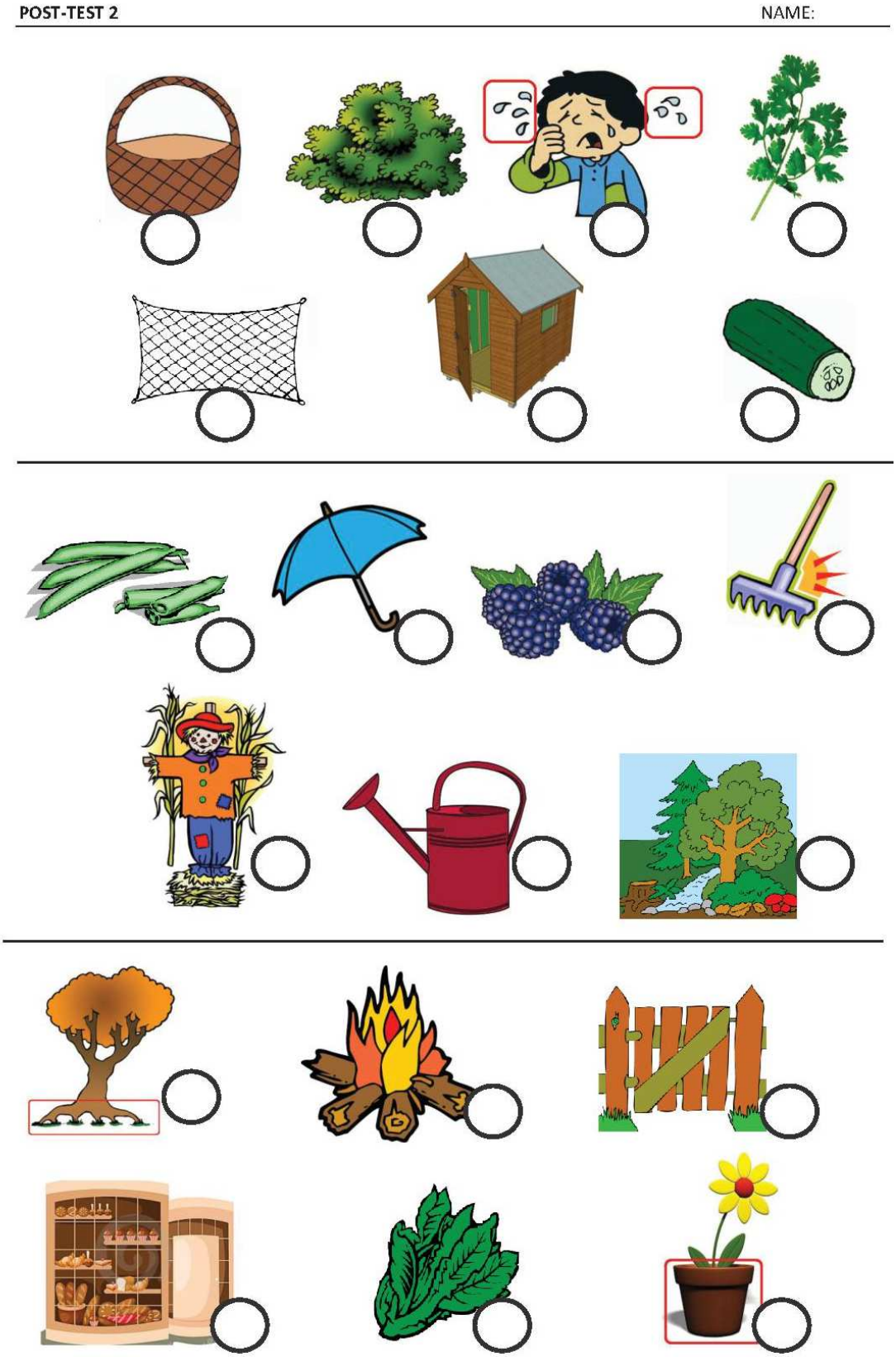
APPENDIX G: POST-TEST I

POST-TEST 1 NAME:





APPENDIX H: POST-TEST II



APPENDIX I: POST-TEST III

POST-TEST 3 NAME: